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ABSTRACT

The use of systems terms and ecological concepts is increasingly common in psychology, and in particular, community psychology. Interest in systems theory began with the development of general systems theory during the 1950's, and led to the adoption of an ecological-systems orientation which recognized the environment as a major determinant of human behavior and experience. Community psychology developed as a subdiscipline concerned with the systems-like relationships linking environmental forces, social processes, and psychological health. As a separate discipline, program evaluation has not shown a comparable trend toward an ecological-systems perspective, and is not equipped to assess the complexity of programs based upon systems conceptions. Researchers engaged in evaluation studies within community psychology must consider the implications and consequences of the ecological-systems theory. The evaluation of a mobile counseling project considered four such consequences: (1) reformulation and reconceptualization of the evaluation question; (2) shift of research design in the direction of complexity and flexibility; (3) use of multiple quantitative, and quantitative measures; and (4) relativistic and perspectival interpretation of results. (Author/NRB)

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THE ECOLOGICAL-SYSTEMS APPROACH IN COMMUNITY PSYCHOLOGY: FOUR IMPLICATIONS FOR PROGRAM EVALUATION

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Running Head: Ecological-Systems Approach

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In recent years, the evolution of psychology has been marked by an increasing acceptance of systems concepts and models. This trend has led psychologists to move away from a view of phenomena as isolated entities and toward a greater appreciation of the relational context of phenomena. As psychology expands its field of application to families, groups, organizations, and even communities, such an expanded conceptual framework becomes increasingly applicable; indeed, the psychological literature is replete with calls for a wider use of systems notions (Berrien, 1968b; Bronfenbrenner, 1979; Miller, 1955; Willems, 1977). Relatively little attention, however, has been directed to the profound implications such a switch would have for the actual practice of psychology. The present paper is addressed to these implications, first tracing the development of an ecological-systems trend in psychology and, second, illustrating the consequences of this trend for practicing community psychologists.

The current interest in systems theory may be traced to the development of General Systems Theory during the 1950's (Berrien, 1968a; Boulding, 1968; Von Bertalanffy, 1968). At the time, serious interest was directed toward the construction of theories that could bridge disciplinary boundaries and counteract the insularity and separation among disciplines. In practice, however, General Systems Theory was less a theory than it was an orientation. The goal of the theory was to overcome the isolation of the various scientific disciplines by integrating them into a hierarchy of levels. These levels, defined by the emergent characteristics of each field, extended from molecular phenomena up through individual organisms to complex human cultures, so that all of human knowledge could be conceptualized as a single system. While no overarching general theory was seriously envisioned, it was anticipated that interdisciplinary efforts

would result in at least modest linkages between adjacent levels in the hierarchy of nested elements (Miller, 1955; Popenoe, 1968).

The advent of cybernetic technology spurred the further development of systems conceptualizations within individual disciplines. Here the term "system" did not necessarily refer to a hierarchical ordering of elements, but rather to a set of interacting elements nested within a common boundary (Berrien, 1968a). Interactions among elements were thus horizontal as opposed to vertical; that is, describing the flow of information and products across mutual boundaries. This permitted a dynamic description and explanation of interrelationships among diverse phenomena.

The approaches and assumptions of systems theory soon gained the attention of behavioral scientists. Psychologists hailed systems theory as a promising tool for the integration of knowledge, particularly in the areas of social and organizational psychology (see, for instance, Indik & Berrien, 1968; Katz & Kahn, 1966; Leavitt, 1965; Seiler, 1967). One prominent result of this shift was the inclusion of both person and environment among relevant behavioral subsystems. Such systems conceptions often resembled elaborations of the Lewinian formulation: $B = f(P,E)$; that is, behavior is a function of both person and environment. This position was also reached by a separate movement within psychology that evolved during the 1960's, that of ecological psychology. At that time a number of psychologists had become disenchanted with the heavy reliance upon controlled experimentation in laboratory settings. They argued that a balanced understandng of human behavior and experience requires research approaches that take particular cognizance of the role of environmental forces upon individuals in their normal, everyday settings (Barker, 1965;

Sanoff & Cohn, 1970; Sommer, 1969; Proshansky, Ittleson, & Rivlin, 1970; Willems & Raush, 1969). This movement was spurred by pressure from students for academic and research experiences that had more immediate application to the ecological issues of the times. Efforts to develop this ecological psychology (our phrase to encompass environmental psychology, social ecology, and behavioral ecology) included exploration of the general assumptions and orientations of its advocates, particularly the stated need for systems concepts in the development of models of person-environment interaction. Hence, just as the systems movement was encompassing the environment, the ecological movement was acquiring a systems orientation. The result is considerable overlap between the systems and ecological orientations within psychology at present. Indeed, these two orientations are inseparable as they are manifested within the discipline; a systems perspective necessitates an appreciation of ecological-environmental factors while an ecological approach necessarily entails an interactionist-systems view of phenomena. This indissoluble linkage suggests that what appear to be two separate strands in the psychological literature are actually elements of a single perspective, which shall be designated here as the ecological-systems perspective.

A number of recent works may be seen to embody this ecological-systems orientation. Bronfenbrenner, for example, has proposed a theoretical perspective for the study of human development that involves a hierarchy of nested subsystems: microsystems, mesosystems, exosystems, and macrosystems, in ascending order (Bronfenbrenner, 1979). At the most molecular level, the microsystem refers to the complex of interrelations between persons and objects within the immediate environment of an

individual. At the most molar level, the macrosystem refers to consistent patterns of person-environment relationship that exist within cultures and subcultures. Bronfenbrenner argues that such systems terminology is necessary for the analysis of the properties of the person, the environment, and the processes relating person to environmental setting. In the context of human development, Bronfenbrenner is concerned primarily with "the progressive accommodation between a growing human organism and its immediate environment, and the way in which this relation is mediated by forces emanating from more remote regions in the larger physical and social milieu." (Bron fenbrenner, 1979, p. 41).

Bronfenbrenner is one of a large number of behavioral scientists who have chosen to recognize explicitly the role of the environment as a major determinant of human behavior and experience. Another representative of this group is Michelson who espouses an intersystem congruence model of person-environment interaction (Michelson, 1976). At the heart of his model is the notion that people should be studied from within the framework of several systems. The environmental system is seen as most basic followed in complexity by organismic, personality, social, and cultural systems. The influence of any one system can be studied upon another. Thus, we can study the interrelationships between personality and culture or between the physical environment and social structure. Each system is viewed as distinct from the others, yet all are related in complex ways. In his use of systems concepts, Michelson focuses specifically upon the degree of congruence between systems. Congruence is a term meaning that the state of variables in one system will coexist better with certain states of variables in another system than with other alternative states.

That is, two different systems may coexist in harmony or they may intermesh producing conflict. For example, the urban environment may support the needs and desires of its inhabitants (congruence) or it may fail to do so (incongruence).

The behavioral approach to the ecological-systems orientation has been adopted by Studer (1973) in his argument for the development of a behavioral ecosystems technology. Such a technology is called for in order to deal with the current complexities of human environmental problems. Studer is specifically concerned with problems of architecture and environmental design. He views the task of the designer as a problem requiring analysis of several systems. One environmental design concern, the alteration of the environment in response to human dysfunction, requires at the very least the understanding of the interrelationship of behavioral and environmental systems. While his behavioral approach to the synthesis of design and psychology is unique, Studer shares with Bronfenbrenner and Michelson faith in the possibilities of an ecological-systems perspective.

Other writers have detailed some of the specific themes or axioms generally associated with systems theory as applied to the study of person-environment relationships (Altman, 1973; Stokols, 1977; Willems, 1977); these may be considered basic propositions of the ecological-systems perspective:

1) Environment and behavior are inseparable. Neither set of elements can be fully understood without reference to the other. It follows that the tendency within psychology to develop predictive

models of human behavior exclusive of the behavior's environmental context must always be incomplete.

2) The understanding of person-environment relationships requires an interactionist perspective. The environment constrains and encourages behavior in measurable ways. At the same time, individuals change and shape the environment. An accurate model of the interaction of environment and behavior must incorporate the notion that causal influences occur in both directions.

3) Environment and behavior interact in a continuously changing way. Descriptive models must not be static, but must allow for this dynamic relationship. The inclusion of homeostatic and dialectic processes in descriptive models addresses this particular theme (Altman & Chemers, 1980).

The Ecological-Systems Approach in Community Psychology

The trend towards ecological-systems thinking was acquired early by community psychologists. Community psychology has been characterized as a field concerned with the systems-like relationships linking environmental forces, social processes, and psychological health (Bloom, Iscoe, & Spielberger, 1979; Heller & Monahan, 1977; Mann, 1978). With the development of this subdiscipline, the general notion of mental illness within the community has shifted to take on an uncompromising ecological perspective. This trend is illustrated by the work of Andolfi, Stein, and Skinner (1977). They view their clients as part of a school-community system that includes child, school, family, and community as components. Work with a client involves explicit attention to the interrelationships among the various subsystems involved in their model. Auerswald (1968) has

described the ecological approach in the case study of an adolescent girl who ran away from home. Her relations with others provided a better explanation of her behavior than did intrapsychic variables. Clum (1975) has described and reviewed the shift in the etiology of mental illness from endogenous (postulating internal mechanisms to account for a clinical symptom) to the view of mental illness as reactive (conceptualizing the illness as the result of overwhelming environmental forces).

General arguments for the importance of an ecological approach to community health have been made by several writers (see for example, Caille, Abrahamsen, Girolami, & Sobbye, 1977; Holahan, 1977; Keeney, 1979; Klassen, 1977; O'Connor, 1977). Of particular interest in our discussion is O'Connor's ecosystems theory of mental health. He views abnormal or pathological behavior as a situation in which the individual is not in a normal relationship with the environment. Hence, O'Connor would tend to make diagnoses that implicate an environmental context that is suboptimal for the individual. Clinical symptoms are seen to follow from situations in which the individual is unable to meet the demands of the home and community environment. Given that the client is generally more accessible to a therapist than is the client's community, it is no surpise that therapists may therefore treat the patient alone, even if verbal recognition is given to the importance of an ecological model in intervention efforts. O'Connor argues that the therapist must consider the outcome of the clinical process to be a function of person, environment, and the interaction of person and total ecosystem. If follows, then, that part of the intervention strategy should be to help in the development of an environment that will support or even create a solution to the patient's

presenting problem. O'Connor's argument in many ways parallels the logic behind Willems' behavioral ecology--an ecological orientation applied to health status and health care that places in central positions the concepts of ecological diagnosis (diagnosis involving the environment as part of symptom etiology) and site specificity of behavior (Willems, 1976; Willems & Campbell, 1975).

Keeney (1979) has argued for an ecosystemic epistemology that stresses the interconnections between different parts of a system. He views systems in terms of a network of information processing that consists of different levels including individual, dyad, family, and social network. Of interest is his assumption that difficulties in any part of a system may give rise to symptomatic expression in other parts of the system. Similarly, relief of symptoms in one part of the system may coincide with expression of symptoms at another site. Hence, a significant change in any part of the system may result in changes elsewhere in the system.

Concern with community mental health has included extensive attention to support systems within an individual's social environment (Biegel, Naparstek & Kahn, 1980; Caplan, 1974). Biegel describes the social support systems available to individuals in terms of friends, family, neighbors, and organizations. Attention to the supportive role and mechanisms of community networks has also received widespread attention (Attneave, 1969; Erickson, 1975; Gatti & Coleman, 1976; Turkat, 1980).

Clearly, then, there exists a trend toward ecological-systems conceptualizations in community psychology. Not surpisingly, in conjunction with the growth of community mental health programs, there has been a growth in the demand for evaluation of such programs (Bry, 1978).

Interestingly, however, program evaluation as a field has not shown a comparable trend toward ecological-systems perspectives, with non-interactionist methods still dominating evaluative practice (Bennett & Lumsdaine, 1975; Guttentag & Struening, 1975). An important consequence of this disparity is that program evaluators may be increasingly unequipped to assess the complexity of programs based upon systems conceptions. The present paper will examine ways of bridging this disparity by outlining the implications and consequences of ecological-systems theory for evaluative practice. Specific reference to an evaluation project will be made throughout, to illustrate the considerable impact systems theorizing entails for the assessment field.

The Evaluation of a Mobile Counseling Project

The illustrative evaluation project to be described here dealt with the effectiveness of a counseling program directed toward teenagers in a moderately-large midwestern city. During the fifties and early sixties, a common leisure time activity for American teenagers was to spend evenings "cruising" local commercial streets, occasionally gathering at drive-in restaurants along "the strip." The contemporary counterpart of this activity substitutes the parking lots of shopping centers as the focal gathering spots. In the city of interest here, the congregation of youths generally begins at sundown. They arrive in cars and park in the shopping-center parking lots or drive along a fairly established cruising strip through the lot and out into the street. At its height, about 9:30 to 10:00 p.m. this activity entails a fair amount of noise and congestion as the youths honk, "rev" engines, squeal tires, shout, wave, and play loud stereo music. Such activities are considered potentially harmful by many

local adults. The gathering of large groups of young people during evening hours is believed to be related in some way to incidents of vandalism, shoplifting, and crimes against persons. Further, the gathering of the youths is believed to encourage the development of self-destructive behavior such as dangerous driving, consumption of alcoholic beverages, and drug abuse.

A program for dealing with these youths was developed by the professional staff from a youth drop-in help center within the city. The staff was concerned about youths who engaged in self-destructive or criminally destructive behaviors. Particularly of concern in this regard were youths abusing various drugs, committing acts of vandalism and theft, and engaging in assaultive crimes toward peers and community members. Because they do not seek help for their presumed problems, their activities tend to go unchecked until they are curtailed by police and juvenile authorities.

The staff believed it might be able to circumvent this process of criminalization by providing on-site counseling and companionship to this "hard core" group of youths. It was anticipated that many such youths could be found among the teenagers frequenting a given area during the evening hours. An outreach program was developed which involved a mobile counseling and prevention center staffed by trained counselors and driven to the young people's "hangouts." The mobile counseling unit was a brightly-colored van prominently labeled with the name of the project. It was staffed by two counselors in their early to mid-twenties and was frequently located in the parking lot on weekday and weekend evenings. The main objective was to contact youths and introduce them to positive

alternative uses of their leisure time. Some youths were to receive on-the-spot counseling to assist them with immediate problems and personal concerns. It was hoped that the program would lead to a reduction of socially and personally destructive behaviors including reduced crime and delinquency.

A plan was developed by an independent evaluation team to gather data that would make possible an estimate of the degree to which the program goals were reached. The evaluators interviewed police, merchants, patrons, and juveniles, both before the program began and after it had been in operation for several months. Changes in perceptions of the juvenile's behavior in before and after comparisons provided one estimate of program impact. In addition, the evaluators visited the shopping area weekly to make direct observations of the activities engaged in by the youths and by the van couseling staff.

Effects of the program were examined at two levels. The first concerned community impact. The guiding question here was: What difference does the Mobile Counseling Center make for persons in the shopping area? These included juveniles, patrons, police, and merchants. The second level concerned the juveniles who came into direct contact with the Mobile Counseling Center. The guiding question here was: What is the impact of the counseling on juveniles who come into actual contact with it? Selected details and findings from the evaluation study will be described in relations to specific issues in subsequent sections of this paper.

The evaluators conceptualized the phenomenon under study in terms of an ecological-systems model. Figure 1 shows the major elements of this system and their interrelationships. The physical setting was viewed as

something more than simply a vessel to contain the behavior of interactants. Rather, it was seen as an integral part of the total phenomenon under study, exerting influence upon the various actors entering the setting and in turn being changed by the activities of various individuals. Norms of appropriate behavior appeared to be operating that governed the expectations and activities of youths, merchants, counselors, and police. These norms were viewed as tied to the setting under analysis. It was anticipated that the youths and other parties in this situation would follow the established norms or "standing patterns of behavior" (Barker, 1968, 1978) that operated within the setting but would not necessarily engage in similar activities when in different settings governed by different behavioral norms.

Insert Figure 1 about here

Since the situation to be studied was viewed as a complex behavior-environment system with interacting components, the evaluation was designed to measure and assess each component separately but with particular attention to the relationship between youth behavior and each of the other system components. To the extent possible, the evaluators were sensitive to the dynamic nature of the system. Seasonal changes in the participants' activities were anticipated. Efforts were made to assess the dynamic interplay between system components due to frequent changes in various parts of the system, such as requests by merchants for police intervention and efforts by the counseling staff to influence youth behavior.

In short, the adoption of an ecological-systems conceptual model tangibly affected the procedure by which the evaluators assessed the community program. It is the present authors' contention that this is necessarily the case; linear reseach methods are inherently unsuited for assessing systems concepts. Accordingly, the remaining discussion focuses on four basic consequences of an ecological-systems perspective for evaluative procedure, illustrating these with concrete examples from the mobile counseling project.

Consequence #1: Reformulation and reconceptualization of the evaluation question

Given a limited, nonsystems approach to evaluation, one would be able to develop only an incomplete description of a community project. One could provide commentary on the degree to which individual project goals were reached, but little else. On the other hand, an evaluation that follows a systems model can result in an assessment of the important elements of the larger network within which the community project is embedded. This latter evaluation provides a more complex and more complete description of the relationship between community project and other components of the larger community system. As a result, the systems evaluator may find that the initial evaluation question is too narrow and fails to capture essential elements of the system's functioning. This has frequently been noted in the literature on family psychotherapy (Andolfi et al.,1977; Caille et al., 1977; Keeney, 1979; O'Conner, 1977), where interventions and evaluations directed at a single family member may fail to capture broader issues within the family unit. What may seem to be the essential community problem from a linear, non-systems vantage point, may

not at all be the problem as seen from a systems perspective. Just as a problem within a single system element may deleteriously affect the larger system in linear fashion, so the system can create and reinforce problems among its single components. Unless the evaluator is open to both possibilities, there remains a likelihood that he or she will only assess a portion of the total phenomenon under study. The systems approach substitutes evaluation of the overall impact of a project for the more common approach of evaluating the adequacy of a project in meeting its stated goals.

An example from the mobile counseling project illustrates this issue. The original evaluation question was dictated by the project's funding source, a state crime control agency. This question simply asked: To what extent did the mobile project reduce juvenile crime in the given shopping area? A non-systems evaluation could easily fulfill its task by assessing the frequency and extent of crime over the period of time that the project was conducted. Within the context of the community system, however, it soon became clear to evaluators that crime had little or nothing to do with the parking-lot phenomena. Juveniles used the lot as a meeting-place, while merchants and patrons needed the lot as a business facility; this was the essential systems conflict. In their desire to remove the youths, the latter groups enlisted police aid, producing arrests for "criminal" trespassing, traffic violations, etc. The relevant evaluation question thus was not: To what extent did the mobile project reduce crime; there was no serious crime to reduce in the first place. Rather, the question should have been: To what extent did the project meet and reduce the conflicting needs of juveniles, patrons, businessmen, and police? The

problem did not singly and solely rest upon the youths' behavior; instead, it rested upon the network of conflicting needs within the community. An evaluation focused on the former would have ultimately produced trivial and misleading data; hence a reformulation of the original question was mandatory.

It is important to note that the systems reformulation of an evaluation question often leads to the point where there is no longer one single evaluation question, but rather a number of interrelated questions. Thus, the mobile project evaluation focused not only upon the impact of the project on juveniles, but on its impact on patrons, police, and merchants as well. Little would be gained if the project met the needs of one group at the expense of all others; hence, an evaluation of project efficacy must assess the multiple impacts of any intervention into a community system.

Consequence #2: Shifting of experimental design from laboratory, unicausal formats to more flexible formats

Given the training that many evaluation researchers receive in the behavioral sciences, it is not uncommon for them to conceptualize intervention projects in terms of a linear model in which a project activity leads to a given effect on a community variable. The ecological-systems approach encourages the evaluator to be sensitive to the possibility that each variable has multiple causes. By examining the interrelationships among different components of the system, the possibility of overdetermination is easier to assess. It is difficult, however, to achieve a satisfactory understanding of the interaction of system elements if our sole method is to construct a test of the impact of

one or several variables upon some criterion of interest while holding all others constant. This point has been described by Altman, 1977:

> Most of us who were trained in the traditions of experimental psychology, and with an environmental-deterministic perspective, typically have an input-output, antecedent-consequent, or an implicit "linear-causation" model of scientific analysis....We have overly reified the process and have neglected the fact that we are probably dealing with many directions of causation, many of which have been ignored because of our methods and underlying assumptions....Now it might appear to be anarchy if almost everything can cause or produce changes in everything else. But such a framework does not rule out research on specific relationships between variables or an understanding of which relationships are more important,....It does suggest, however, that an overly narrow conception of causative relationships may not lead to an understanding of the whole system. (p. 308)

The traditional independent variable-dependent variable methodology has some merit in a systems-oriented evaluation as long as the controlled, experimental method is not set up as a single, definitive test of the program. Rather, a number of separate tests should be constructed to assess different relationships between the various components of the system.

Even when multiple tests are used to study an ecological system, traditional experimental methods provide incomplete information. It has been argued elsewhere that highly-controlled research designs possible and appropriate to research in laboratory settings are undesirable in the study of questions about naturally-occurring behavior (Argryis, 1968; Chapanis, 1967; Willems & Raush, 1969). One of the main reasons given is that research in laboratory settings suffers from low external validity. When experimental control is imposed on the assessment of a program, either through randomization or through holding some variables constant, the

result is a masking of interactions between variables that would normally occur. Such masking of unwanted interactions simplifies interpretation but fails to accurately portray the complex interrelationships existing among systems components. As a result, highly controlled research designs are likely to yield incomplete and perhaps misleading views of dynamic behavior-environment systems.

The former argument does not obviate the need for scientific rigor; rather it contends that rigor can be attained only when research designs are adequately matched to the questions that they intend to answer. When the questions are conceived within an ecological-systems perspective, the research designs must be sufficiently inflexible to permit the detection and measurement of subtle interrelationships among variables. This can be accomplished when it is acknowledged that, just as the systems view can expand a single evaluation question into a number of interwoven questions, so it can expand a single design into a number of complementary designs, each of which is maximally geared to answer a given question. There is no a priori reason for believing that a single research design can adequately capture the multitude of causal relations existing within a given system. More likely, several designs will be required; after all, designs must accommodate the research problem, not vice versa. Thus, one relationship between elements may be best studied through the use of a quasi-experimental design (Campbell & Stanley, 1963); others through the use of case study designs, controlled experimental designs, etc.

With regard to the mobile counseling project, it was realized from the outset that a strict independent-dependent variable methodology would fail to adequately capture the operations of the system under study. The

decision was made to consider possible alternative methodologies. Several quasi-experimental designs were considered and a non-equivalent control-group design was initially selected. It soon became clear, however, that from a systems perspective, such a design would require a "control system" for comparison. Not surprisingly, there was no such system available; the teenage phenomenon was unique to one location in the city. Therefore another strategy was chosen. The total set of activities along the Boulevard was considered as a behavior-environment "system" which included a number of component parts, including junveniles, police, merchants, and patrons. Individuals representing each of these roles had a different perspective on the activities engaged in by the teenagers. The assumption was made that if the mobile counseling program had a significant impact upon the youths' behavior and the perceptions of the different individuals involved in the system, then it should be possible to measure this impact by monitoring the relevant beliefs and perceptions of all individuals involved.

To accomplish these ends, three research designs were combined in this evaluation study. First, measures were made at two points in time to determine before and after changes in the system related to the mobile counseling activities. The time 1 measures were made just as the van project was being developed, before the counselors' activities could have an impact upon the youths. Time 2 measures were made after eight months, when the counseling work ceased due to Winter weather. These before-after measures included interviews with merchants in the local stores, patrons, and police officers assigned to the area during the evenings. The second design involved the continuous monitoring of youth activities in the

parking area, producing time series data. On a time-sampling basis (generally one night per week), researchers drove throughthe area frequented by the youths and noted the number of juveniles observable and their apparent activities. Generally two tours were made through the area on each evening sampled. Note was made of litter that appeared related to juvenile activities (e.g., beer cans, food wrappers). Similar time series data was to be obtained from records kept by the counselors of the number and nature of contacts with the youths. However, the staff did not keep the records systematically as had originally been planned. Hence, this source of data was not available to the evaluators. Police records of calls to the area and arrests made were to be examined for trends. However, such calls were few and arrests too rare to make such data meaningful.

The third research design was participant observation. The evaluators made a number of casual contacts with youths and counselors during weekly visits to the parking area. The evaluator-observers spoke with one or more teenagers on almost e very visit to the area. Of approximately 50 youths queried as to their activities and perceptions of the situation, ten were questioned in some depth as to their motivations for coming to the area and their activities while there. The evaluators also spent time during most visits to the area near the mobile counseling center. Causal conversation was engaged in between evaluators and counselors to find out what had been happening recently regarding the counselor's contacts with the youths. During these visits to the van, the evaluators' observed the actual counseling and, hence, were in a position to assess to some degree the quality and quantity of counseling that was occurring.

Each of the three research designs used in this evaluation had inherent weaknesses by some criteria; these were expected and the interpretation of the findings took the different weaknesses (e.g., lack of rigorous experimental control) into account. Our approach was to combine the various, limited assessments of portions of the system to develop a balanced picture of the whole system as it changed and developed during the course of the study.

Consequence #3: Shifting of choice of measures from single, quantitative measures to multiple, qualitative and quantitative measures.

It is not uncommon to find calls for the use of multiple criterion measures in the methodological literature. Published reports of evaluation studies usually involve a variety of dependent measures. The use of the ecological-systems approach to evaluation requires even more than the usual emphasis on a broad selection of measures. By multiple measurement, we do not refer to the use of several separate dependent variables or scales upon a single questionnaire. Rather, we refer to the use of a combination of dissimilar measurement methods such as questionnaires, interviews, systematic observation, and participant observation. This follows from the previously mentioned need for a multiplicity of research designs; when one adopts an ecological systems perspective to evaluation, the different components of the system will quite likely each be best addressed and assessed with a different measurement technique. The ecological aspect of such a systems approach requires the gathering of data on the actual relationship between human activity and the environmental setting. Direct assessment of this relationship requires naturalistic observation in some form. Some of the measurement techniques appropriate to ecological

research have already appeared in the community psychology literature. Behavioral mapping (Holahan & Bell, 1978), behavior settings (Carr, Cooke, Strain, & McMillan, 1976), activity range (Ostro & Adelberg, 1976), and behavioral diaries (Campbell & Shlechter, 1979) provide examples. However, the use of such methods has not been commensurate with the frequency of articles calling for an ecological approach. In a review of published reports from the first six years of the American Journal of Community Psychology, Novaco and Monahan (1980) found that "very little research has appeared that is directed at either the assessment of environments (4.8%) or person-environment interaction (5.4%)" (p. 140). To the contrary, a trend was noted toward an increase in the proportion of articles concerned with assessing persons independent of their environment. Only 30.1 percent of the studies involved more than one kind of dependent measure, and this percentage had decreased over the last three years reviewed.

A second facet of this consequence regarding measurement follows from the tendency for systems models of analysis to include many separate elements which require assessment. There is an almost exponential rise in phenomena to measure as elements are added to the system that is conceptualized. Along with this increase, the evaluator is confronted with decreased ability to quantify and measure all the relevant phenomena--at least, using the usual systematic measurement techniques. There is, however, another set of seldom-used assessment techniques that can and should be used in such situations. It is described with such words or phrases as clinical insight, common sense, sensitivity, empathy, and awareness. We refer to it as qualitative measurement (Filstead, 1970; Patton, 1980). The point is that the researcher has reasonably efficient

cognitive data-processing and reduction capabilities that can be used to advantage in dealing with overwhelming sets of data that cannot be reduced to positions along quantitative variables, either because of their complexity or number. Such qualitative, subjective understanding of a system comes from frequent and close association with it by an aware and sensitive evaluator. Admittedly, not all evaluators can be good observers when the task is to gain an accurate knowledge of a system through qualitative means, e.g., a few carefully-worded questions in casual conversation with project staff, or attention to important details during casual observation that make for revealing samples of evidence of a system's functioning. Unfortunately, we do not attempt to train our students to be sensitive observers in the methodological courses usually offered in psychology. Rather, we train for skills in questionnaire construction, scaling techniques, research design, and statistical analysis. Admittedly, subjective techniques of data measurement are subject to all the biases, expectations, and blind spots of the observer. Further, it is difficult, though quite possible, to make a determination of the reliability and validity of the findings that result from measurement of qualitative and subjective phenomena.

Insert Table 1 about here

In the mobile counseling project, a variety of measurement techniques were used. These are summarized in Table 1. The methods varied from the structured interview questions for merchants, patrons, and police to the more casual probing of youths regarding their activities in the parking

area and their reasons for coming there. The observation techniques in turn varied from the systematic counting of vehicles entering the parking area in a given time interval to the more casual notations of visible youth activities and general assessment of amount of litter on the ground. Each measure provided information on a very limited portion of the system under study. However, the composite of these separate measures provided a reasonably complete description of the total ecological system as it changed and developed over the course of this study.

Perhaps the richest source of data was the direct observation of the parking lot activities. The frequencies of youth behavior listed in Table 2 were obtained from the field notes taken during the observations. It became quickly apparent that the youths cruising the boulevard and parking lot were mainly teenagers from the local high schools. Boys outnumbered the girls by approximately three to two. Most boys came in their own cars, which tended to be "souped-up" versions of older American models. Girls frequently drive better, newer model cars which, presumably, belonged to their parents. The majority of youths came to the district with members of the same sex; actual dating on the boulevard was not common. Most frequently, boys and girls would meet each other in the parking lot in groups of four to ten and socialize en masse.

Insert Table 2 about here

Although cruising occurred nightly, it was primarily a weekend phenomenon. On an average weekday, approximately 50-60 cars would cruise the parking lot; this increased threefold on weekends. The result was a

high degree of congestion in the parking lot and on the adjacent boulevard. Indeed, bumper to bumper traffic in either location was not uncommon.

As Table 2 suggests, the activities of the youths were almost exclusively social. Serious delinquent behavior was rare. The only violations of the law that were observed were minor traffic offenses (speeding, improper turns), and possession of beer, liquor, and marijuana. The former were the most frequent. Yet four months of observation failed to turn up a single traffic accident in the area during cruising hours--a remarkable feat considering the amount of traffic involved. Beer was the most common "drug" among the teenagers; approximately one-third to one-half of all teenagers openly indulged on the lot. A lesser number, no greater than 10 percent, were observed with wine or stronger liquor. Because the lot was occasionally patrolled by police, drinking was generally surreptitious, occurring in back seats of cars and remote areas of the lot. Despite this, out and out drunkenness was only rarely observed and drunken driving was not observed. Harrassment of store patrons was only observed once. In this instance, some youths honked their horns at a slow-driving elderly shopper who was holding up the procession.

The evening observations led to a similarly detailed description of the mobile counseling center. The van was usually parked in a well-travelled location to maximize its visibility to the youths. The van staff relied upon the youths to initiate contacts rather than actively seek out youths in possible need of aid. Open van doors and stereo music were used to attract teens to the counseling service. The van interior was carpeted and covered with pillows. Contact between counselors and teens generally occurred outside the van in the parking lot.

The mobile counseling staff appeared to encourage two types of interaction between counselors and youths. The first, and most common, was friendly, rapport-building conversation; the second was actual counseling. Counselors knew many of the youths by name and encouraged them to visit the van simply to talk. A large number of youths--up to thirty nightly--would stop by in this fashion and discuss school, cruising, and other favorite topics. These youths appeared to feel very comfortable with the van staff, to the point of approaching the van with beer in hand.

Less common were therapeutic counseling interactions with the youths. Several were observed during the observation period; the van staff itself claimed only a few per week. Major problems discussed during these contacts were drug abuse, school and family conflicts, and interpersonal difficulties. The van staff in these situations provided emotional support, empathic listening, and suggestions of possible resources to meet the needs of troubled youths. The counseling staff appeared to be positively perceived by juveniles where counselor-youth interaction occurred. The juveniles didn't hesitate to park near the van, listen to music coming from the van, and interact casually with the van staff.

The quantitative measures (standardized interview questions, tallies obtained during systematic observations) had the potential to provide accurate assessment of the extent of change in the youths' behavior during the period that the counseling project was in operation. However, the qualitative, subjective information provided the most insight into the details of this ecological system and led to the chosen explanation for the minimal effect that was attributed to the counselors' efforts. For example, interview questions posed to the police officers assigned to the

area frequented by youths led to quantifiable data on the presence of police in the parking area and on the involvement of the youths in criminal activities. However, only in casual conversation between an evaluator and a police officer was it learned that the police intervened in the youths' behavior (and cleared the parking lot of all cars) not because of observed criminal activity but because of complaints from the local merchants. The cruising activity did not normally commence until after most of the stores had closed for the day. Hence, it appeared that the police activities with regard to the youths were based upon complaints received before the arrival of the youths. Hence, the frequency of police intervention in the area could not be used as a dependable measure of youth criminal activity. For our purposes, it is noteworthy that this information did not become available through normal data-gathering channels, but rather through attention to casual contact with elements of the system under study.

A second example of the contribution made by qualitative information deals with the effects of the counseling staff. Examination of trends in the data suggested that the mobile counseling project was not causing any noticeable shift in the activities of the youths' in general, even though a number of the younger teenagers did come into contact with the counselors. Data from interviews with merchants, patrons, and police revealed that the mobile counseling center had very low visibility. The van itself was designed to be highly visible in a physical sense--through use of paint, parking location, and music played through open van doors. However, the purpose of the van was not visible to most of the interactants in this sytem. It was clear from the observations that even in their contacts with some of the youths, the counselors generally did not make clear their role

as professional counselors. While no specific set of interview questions or observation categories led to this conclusion, it was nevertheless a clear and important explanation of the relatively minimal impact of the counseling project, and this conclusion would not have been made if the evaluators had maintained a psychological distance from the project and relied extensively upon predetermined variables in developing an understanding of the counselors' impact.

Consequence #4: Relativistic, perspectival interpretation of results

As psychologists shift from the asking of single evaluation questions measured through linear methods to the conceptualization of multiple questions and methods, they invite an added measure of ambiguity into the interpretation of their results. From an ecological-systems perspective, few interventions into a system will have only a single outcome; rather, they will produce a multiplicity of effects. Rarely will all of these effects be uniformly positive or negative; more likely, they will benefit some systems elements, hinder others, and only marginally affect still others. The evaluator must somehow coordinate these disparate outcomes into a single judgment of the program in question. Was the program efficacious; from the perspective of element A, it may have been, whereas from the vantage point of B,it may have been an utter failure. A program is only effective by some set of standards, values, or perspectives. In a linear model, the evaluator need only be concerned with the single standard entailed in the evaluation question. In a systems model, however, there exists by definition a number of standards or perspectives. Absolute program efficacy becomes a practical impossibility; the evaluator must be satisfied with the efficacy that is relative to given elements. Thus, in

the present example, the ecological-systems evaluators did not ask: Was the mobile counseling project successful? Instead they asked: In what ways was the mobile counseling project successful and in what ways did it fail?

This latter question, of course, translates into the more concrete question: Which elements of the system benefitted from the project and which did not? If all elements benefitted, then the project was clearly a success; if all were harmed, it was clearly a failure. But where some are furthered and some hampered, the judgment of success or failure ultimately becomes a matter of values; i.e., a matter of which elements' interests are to be championed. If the evaluators cannot rest upon an absolute base of judgment, they must choose a perspective from which to operate; such a choice is ultimately a matter of values--not of research-derived facts. Moreover, this problem becomes more acute as elements are added to the system, since more elements provide an increased likelihood for diversity of perspectives and conflicts in values. In a word, then, the movement from linear to systems models shifts the entire nature of the evaluation process. As evaluators increasingly juggle the disparate needs, interests, and values of community groups in judging the efficacy of programs, their work becomes increasingly ethical and political and decreasingly objective and scientific. Issues of how psychologists can adequately discharge this responsibility have been addressed (Knight & Campbell, in press), though the field could clearly benefit from an expanded awareness of its ethical implications and obligations.

An issue related to the above concerns the communication of results once conclusions are drawn. Given that different elements within the

system hold different perspectives and values and that the agency receiving the evaluation is ultimately a part of the relevant system, the results may be dependent upon the point of view taken by the evaluators in the discussion of the findings. The implications, both political and personal, of selecting a given style of comunicating the results, may include the possibility that the results will not receive serious attention, regardless of their accuracy or merits. While this point is not new to the evaluation literature (see for example Campbell, 1976; Katz, 1975), it deserves particular attention when a systems approach is taken.

Optimally, the agency or persons receiving the results of such an evaluation can be apprised of the total, complex picture. The ethical questions which ensue and the values which are adopted then become not only the concern of the evaluators, but also the concern of those responsible for the project's instigation.

The adoption of a perspective approach to the interpretation of evaluation results is illustrated by the mobile counseling project. Data were compared from different parts of the ecological system involving counselors, police, juveniles, merchants, shoppers, and the physical milieu. Each individual in the system saw the youth problem from a particular vantage point which involved selective perception and a modest degree of bias. The police attended mainly to law violation and youth-police relationships. Patrons were mainly concerned with traffic-induced goal blockage--they didn't want their movement to and from the stores to be impeded. The merchants saw the situation in terms of variables that could influence net profits--hence, they voiced concern over litter, shoplifting, and traffic problems. From the youths' perspective, the parking lot scene

was more benign. They saw their behavior as a normal social activity involving the excitement of noise and confusion, talking with friends, and indulging in an illicit adult drug (beer) and a teen-accepted drug (marijuana). Finally, the counselors saw the situation as an opportunity, 1) to provide needed counsel to youths who could not obtain supportive advice from parents or other adults, and 2) to promote activities at their drop-in center as an alternative to loitering in the shopping area. By gathering data from representatives of all participating groups in this system, the evaluators were able to counterbalance the various perspectives involved in constructing the description of the youths' activities that emerged in their report.

The evaluators felt that a "balanced" report that merely presented the youths' behavior and counselors' impact from the various points of view would be perceived as unclear, "wishywashy," and lacking in significant impact. Therefore, the evaluators chose to present as clearly as possible their own interpretation of the parking lot phenomenon and counselor activity from their own explicit value system and world view. They felt that the youths' behavior must be understood in terms of the environmental context within which it occurs. The "cruise" setting existed with its own behavior norms. The youths adopted these norms upon arrival in the area. There was no reason to expect the youths to exhibit the same behaviors in other settings which have different behavioral norms. Rather, the youths apparently were conforming to the demands of their immediate environment. Hence, one would not expect participation in the cruising experience to have lasting behavioral after-effects as these youths mature and begin to spend more leisure time in other settings. Following this ecological

model, even undesirable juvenile behaviors in the shopping area would be largely confined to that setting.

A reasonable interpretation of the data in this evaluation is that the mobile counseling project reached relatively few youths. Clearly it did not cause any noticeable shift in the activity of the larger population of youths in the area. The evaluators noted this in their report and thus satisfied their contracted obligation as assessors of the counselors' effectiveness. However, the evaluators own beliefs and broader understanding of the ecological system at hand led to the decision to take the evaluation a step further. They chose to redefine the evaluation problem that had been placed before them. What was originally viewed as problem behavior actually appeared to be a public exhibit of "healthy" activity for teenagers during their high school years. Rather than a breeding ground for delinquency and crime, the parking lot and adjacent boulevard appeared to be an important setting for the satisfaction of adolescent psychological and social needs as the youth came to terms with the transition from childhood to adulthood. Such a redefinition of the problem and a decision to champion the interests of the juveniles carried implications not only for the activities of the counseling staff but for the expectations of program effectiveness. It was felt that efforts to disperse or displace the relatively innocuous youth activity could do more harm than good. It has been argued elsewhere (Rogers-Warren & Warren, 1977; Willems, 1974) that interventions into stable behavior-environment systems can result in unanticipated and undesired effects sufficiently severe that the attempts at humane intervention result in more harm than benefit to the system. The conclusion of the evaluation report, therefore,

was that the youths' activities did not represent a problem of sufficient severity to warrant an intervention effort that could result in undesired effects.

Conclusions

We have argued that the use of systems terms and concepts is increasingly common in psychology, and in particular, community psychology. Further, the concept of system has at least two major components: the notion of interrelated parts of a larger whole, and the notion of dynamic, naturally-occurring behavior-environment phenomena which cannot be understood piecemeal. As researchers engaged in evaluation studies in the field of community psychology (defined broadly) adopt the ecological-systems model in their work, they would do well to consider the consequences of such a course of action. Four of these consequences have been described in this paper. The evaluation questions will often need to be rephrased to fit the systems with which the program to be evaluated occurs. Notions of carefully-controlled research design appropriate to laboratory experimentation will have to give way to broader, more flexible approaches to research design. Single, quantitative data-collection methods will give way to multiple-method qualitative as well as quantitative techniques. And the research endeavor will have to proceed with increased vigilance for the possibility of opposing values within different components of the system. A relativistic interpretation of the results from different roles' vantage points represented in the system will be appropriate. In interpreting such results, the evaluator will have to develop some of the skills and sensitivities generally considered appropriate for participants in political processes. It is anticipated

that the dialogue represented by this paper will be continued as the merits of these consequences for the ecological-systems approach are further explored and as other consequences are indentified.

NOTES

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References

Allen, T.H. New methods in social science research. New York: Praeger, 1978.

Altman, I. Some perspectives on the study of man-environment phenomena. Representative Research in Social Psychology, 1973, 4, 109-126.

Altman, I. Research on environment and behavior: A personal statement of strategy. In D. Stokols (Ed.), Perspectives on environment and behavior. New York: Plenum, 1977.

Altman, I., & Chemers, M. Culture and environment. Monterey, CA: Brooks/Cole, 1980.

Andolfi, M., Stein, D.D., & Skinner, J. A systems approach to the child, school, family, and community in an urban area. American Journal of Community Psychology, 1977, 5, 33-43.

Argyris, C. Some unintended consequences of rigorous research. Psychological Bulletin, 1968, 70, 185-197.

Attneave, C. Therapy in tribal settings and urban network intervention. Family Process, 1969, 8, 192-216.

Auerswald, E. Interdisciplinary vs. ecological approach. Family Process, 1968, 7, 202-215.

Barker, R.G. Explorations in ecological psychology. American Psychologist, 1965, 20, 1-14.

Barker, R.G. Ecological psychology. Stanford, CA: Stanford University Press, 1968.

Barker, R.G. Habitats, environments, and human behavior. San Francisco, CA: Jossey-Bass, 1978.

Bennett, C.A., & Lumsdaine, A.A. (Eds.) Evaluation and experiment. New York: Academic, 1975.

Berrien, F.K. General and social systems. New Brunswick, NJ: Rutgers University Press, 1968. (a)

Berrien, F.K. A general systems approach to taxonomy. In B.P. Indik & F.K. Berrien (Eds.), People, groups, and organizations. New York: Teachers College Press, 1968. (b)

Bertalanffy, L. von General systems theory. New York: Braziller, 1968.

Biegel, D., Naparstek, A.J., & Khan, M.M. Determinants of social support systems. In R.R. Stough & A. Wandersman (Eds.), Optimizing environments. Washington, D.C.: Environmental Design Research Association, 1980.

Bloom, B., Iscoe, I., & Spielberger, C.D. (Eds.) Community psychology in the 1970's. New York: Plenum, 1979.

Boulding, K.E. General systems theory: The skeleton of science. In W. Buckley (Ed.), Modern systems research for the behavioral scientist. Chicago: Aldine, 1968.

Bronfenbrenner, U. The ecology of human development. Cambridge, MA: Harvard University Press, 1979.

Bry, B.H. Program evaluation: Fruitful area for community psychology Consultation. Journal of Community Psychology, 1978, 6, 291-293.

Caillé, P., Abrahamsen, P., Girolami, C., & Sobbye, B. A systems theory approach to a case of anonexia nervosa. Family Process, 1977, 16, 455-460.

Campbell, D.E. Evaluation of the built environment: Lessons from program evaluation. In L.M. Ward, S. Coren, A. Gruft, & J.B. Collins (Eds.),

The behavioral basis of design, Book I. Stroudsburg; PA: Dowden, Hutchinson & Ross, 1976.

Campbell, D.E., & Shlechter, T.M. Library design influences on user behavior and satisfaction. The Library Quarterly, 1979, 49, 26-41.

Campbell, D.T., & Stanley, J.C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally, 1963.

Caplan, G. Support systems and community mental health. New York: Behavioral Publications, 1974.

Carr, T.H., Cooke, T.P., Strain, P.S., & McMillan, D. An ecologically oriented approach to youth deviance. Journal of Community Psychology, 1976, 4, 389-400.

Chapanis, A. The relevance of laboratory studies to practical situations. Ergonomics, 1967, 10, 557-577.

Clum, G.A. Intrapsychic variables and the patient's environment as factors in prognosis. Psychological Bulletin, 1975, 82, 413-431.

Erickson, G.D. The concept of personal network in clinical practice. Family Process, 1975, 14, 487-498.

Filstead, W.J. (Ed.) Qualitative methodology. Chicago: Rand McNally, 1970.

Gatti, F., & Coleman, C. Community network theory: An approach to aiding families with troubled children. American Journal of Orthopsychiatry, 1976, 46, 605-617.

Guttentag, M., & Struening, E.L. (Eds.) Handbook of evaluation research. Beverly Hills, CA: Sage, 1975.

Heller, K., & Monahan, J. Psychology and community change. Homewood, IL: Dorsey, 1977.

Holahan, C.J. Social ecology. In I. Iscoe, B. Bloom, & C. Spielberger (Eds.), Community psychology in transition. Washington, D.C.: Hemisphere, 1977.

Holahan, C.J., & Bell, K.F. An application of ecological methods in community psychology: Assessing the functioning of an innercity park. Journal of Community Psychology, 1978, 6, 309-311.

Indik, B.P., & Berrien, F.K. (Eds.) People, groups, and organizations. New York: Teachers College Press, 1968.

Katz, D. Feedback in social systems. In C.A. Bennett & A.A. Lumsdaine (Eds.), Evaluation and experiment. New York: Academic, 1975.

Katz, D., & Kahn, R.L. The social psychology of organizations. New York: Wiley, 1966.

Keeney, B.P. Ecosystematic epistemology: An alternative paradigm for diagnosis. Family Process, 1979, 18, 117-129.

Klassen, D. Person, setting, and outcome in a drug abuse treatment program. Psychiatric Annals, 1977, 7, 80-104.

Knight, C.R., & Campbell, D.E. Evaluation research: Evaluator roles and inherent social commitments. Environment and Behavior, in press.

Leavitt, H.J. Applied organizational change in industry: Structural, technological and humanistic approaches. In J.G. March (Ed.), Handbook of organizations. Chicago: Rand McNally, 1965.

Mann, P.A. Community psychology. New York: Free Press, 1978.

Michelson, W.H. Man and his urban environment. Reading, MA: Addison-Wesley, 1976.

Miller, J.G. Toward a general theory for the behavioral sciences, American Psychologist, 1955, 10, 513-531.

Novaco, R.W., & Monahan, J. Research in community psychology: An analysis of work published in the first six years of the American Journal of Community Psychology. American Journal of Community Psychology, 1980, 8, 131-145.

O'Conner, W.A. Ecosystems theory and clinical mental health. Psychiatric Annals, 1977, 7, 63-77.

Ostro, J.M., & Adelberg, B.Z. Community settings in the lives of adolescents: A research note. Journal of Community Psychology, 1976, 4, 401-402.

Patton, M.Q. Qualitative evaluation methods. Beverly Hills, CA: Sage, 1980.

Popenoe, D. The sociocultural context of people, groups, and organization. In B.P. Indik & F.K. Berrien (Eds.), People, groups, and organizations. New York: Teachers College Press, 1968.

Proshansky, H.M., Ittelson, W.H., & Rivlin, L.G. (Eds.) Environmental psychology: Man and his physical setting. (1st Ed.) New York: Holt, 1970.

Rogers-Warren, A., & Warren, S.F. (Eds.) Ecological perspectives in behavior analysis. Baltimore: University Park Press, 1977.

Sanoff, H., & Cohn, S. (Eds.) EDRA One: Proceedings of the 1st Annual Environmental Design Research Association Conference. Raleigh, NC: North Carolina State University, 1970.

Seiler, J.A. Systems analysis in organizational behavior. Homewood, IL: Richard D. Irwin, 1967.

Sommer, R. Personal space. Englewood Cliffs, NJ: Prentice-Hall, 1969.

Stokols, D. Origins and directions of environment-behavioral research. In D. Stokols (Ed.), Perspectives on environment and behavior. New York:

Plenum, 1977.

Studer, R.G. Man-environment relations: Discovery or design. In W.F.E. Preiser (Ed.), Environmental design research, Vol. 2. Stroudsburg, PA: Dowden, Hutchinson & Ross, 1973.

Turkat, D. Social networks: Theory and practice. Journal of Community Psychology, 1980, 8, 99-109.

Willems, E.P. Behavioral technology and behavioral ecology. Journal of Applied Behavior Analysis, 1974, 7, 151-165.

Willems, E.P. Behavioral ecology, health status, and health care: Applications to the rehabilitation setting. In I. Altman & J.F. Wohlwill (Eds.), Human behavior and environment (Vol. 1). New York: Plenum, 1976.

Willems, E.P. Behavioral ecology. In D. Stokols (Ed.), Perspectives on environment and behavior. New York: Plenum, 1977.

Willems, E.P., & Campbell, D.E. Behavioral ecology: A new approach to health status and health care. In B. Honikman (Ed.), Responding to social change. Stroudsburg, PA: Dowden, Hutchinson & Ross, 1975.

Willems, E.P., & Raush, H.L. (Eds.) Naturalistic viewpoints in psychological research. New York: Holt, 1969.

Table 1

Measurement Techniques

	Interview/Questionnaire	Observation	Records
Merchants	X		
Patrons	X		
Police	X		(X)
Youths			
in general	X	X	
Youths			
contacted	X	X	
Counselors		X	(X)
Physical			
setting	X	X	

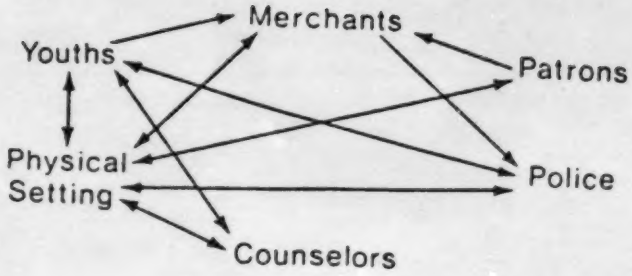
Table 2

Frequencies of the Observed Youth Activities

Activity	Weekday	Weekend	Total
Talking	36	37	73
Beer drinking	11	19	30
Sitting on cars	6	12	18
Playing music	6	6	12
Littering	3	9	12
Driving, seeking friends	3	7	10
Playing Frisbee, football	3	7	10
"Parade" watching	2	6	8
Eating and drinking	5	2	7
Horn honking	3	4	7
Hot rodding, brake squealing	5	2	7
Sitting on lawn chairs	0	6	6
Looking at car engines	3	3	6
Necking	4	2	6
Waving to cars	3	1	4
Jumping on passing cars	0	4	4
Smoking marijuana	2	1	3
Fireworks	0	2	2

Figure Caption

Figure 1. Major system elements and paths of influence pertaining to the youths' activities.


Merchants
Youths
Patrons
Physical
Setting
Police
Counselors